AMENDMENTS TO THE CLAIMS

1. (Previously Presented) A method for characterizing a fluid containing particles that reflect ultrasound waves, wherein a specimen of the fluid placed between two surfaces in a rheometer in order to measure rheological characteristics of the specimen is stressed when the two surfaces undergo relative movement one with respect to the other, wherein local ultrasonic data relating to the deformation of the specimen are simultaneously collected by ultrasonic wave measurement means and by ultrasonic data intercorrelation, wherein rheological characteristics of the fluid are determined, and wherein several velocity profiles along a Z axis are determined in succession and at a frequency of between 0.1 Hz and 1 kHz.

2. (Previously Amended) The method as claimed in claim 1, wherein the local ultrasonic data relating to the deformation of the specimen are collected by probing said specimen with ultrasonic waves with a frequency of above 20 MHz.

3. (Previously Amended) The method as claimed in claim 1, wherein the operation of the rheometer delivers a temporal reference for the collection of the local ultrasonic data relating to the displacement of the specimen subjected to the stresses induced by the rheometer.

4. (Previously Presented) The method as claimed in claim 1, wherein the local ultrasonic deformation data correspond to the displacement of a multitude of points along the axis Z, this multitude of points forming a substantially continuous field of observation, this method including an observation step during which:

- several ultrasonic pulses are sent in succession into the specimen with a pulse repetition frequency of between 0 and 20 kHz;
- echoes corresponding to each ultrasonic pulse reflected by the reflecting particles of the specimen are detected; and

- displacements in the specimen between two pulses for points in the field of observation are calculated locally using a cross-correlation technique on the ultrasonic local data.

5. (Original) The method as claimed in claim 4, wherein a calibration step precedes the step of observing the displacement of the fluid specimen by means of ultrasonic waves, which calibration step is carried out with a fluid specimen for which the theoretical local data relating to deformation are known and along an arbitrarily fixed firing axis Z, and during which measurement correction factors are calculated by adjusting the known theoretical local specimen deformation data to the local deformation data measurements collected by means of the ultrasonic waves.

6. (Previously Presented) The method as claimed in claim 4, wherein said observation step is followed by an image display step during which all the positions of a multitude of points on the Z axis are observed as a function of time, via the pressure amplitude on a transducer of the echoes corresponding to each ultrasonic pulse reflected by the reflecting particles of the specimen, it being possible for this amplitude to be chromatically coded.

7. (Previously Presented) The method as claimed in claim 4, wherein said observation step is followed by a velocity calculation step on the basis of displacements of the points in the field of observation at a given instant, along the Z axis, then this calculation is repeated several times and, after having averaged all the velocities obtained at each of the points in the field of observation, a velocity profile along the Z axis is determined.

8. (Canceled)

9. (Previously Presented) The method as claimed in claim 4, wherein the field of observation extends over at least a plane containing a first axis Z and a second axis Y that makes any angle with said first axis.

10. (Previously Presented) The method as claimed in claim 4, wherein, during said observation step, an array of several ultrasonic transducers placed along at least the Z axis is used in order to emit the ultrasonic pulses and to detect the echoes corresponding to each ultrasonic pulse reflected by the reflecting particles of the specimen so as to supply an image of the displacements of the points in the field of observation at a given instant.

11. (Canceled)

12. (Canceled)

13. (Canceled)

14. (Canceled)